**Software Requirement Specification (SRS) for Online Voting System(OVT)**

**1. Introduction**

1.1 **Purpose**:

Online Voting System (OVS) is intended to provide an easier, more convenient alternativeto the tedious costly offline voting process of an election.It provides a platform for voters to cast votes online, election commission to approve candidates based on their documents, and candidates to share their profiles and accomplishments with their constituency.With automated vote counting, results declaration, and statistics generation, this software aims to completely replace the traditional election procedure.

This document is meant to delineate the features of OVS, so as to serve asa guide to the developers on one hand and a software validation documentfor the prospective client on the other

**1.2 Scope:**

We describe what features are in the scope of the software and what arenot in the scope of the software to be developed.

In Scope:

a) Authentication of users (candidate/voter/admin).

b) Registration of electoral candidates and voters.

c) Verification of candidate profiles.

d)Profile management of electoral candidates, which includes uploadingpersonal details and milestones.

e)Provision for elections and automated vote counting.

f) Managing elections and finding winners from each area.

g) Cancelling or pausing elections in case of security breaches or violation of other laws as decided by the Election Commission.

h) Generation of statistics after election.

Out of Scope:

a) Any election related prediction.

b) Evaluation of candidate profiles.

c)Automatic verification of uploaded documents.’

d) Registration of candidates in the election. Registration to an election will be done offline through the official process as stated by the Election Commission.

**1.3 Definitions, Acronyms, and Abbreviations:**

*Acronyms and Abbreviations:*

a) OVS: Online Voting System.

b)EC: Election Commission.

c)SRS: Software Requirements Specification.

*Definitions:*

1. Election: A formal and organized choice by vote of a person for apolitical office or other position.
2. Election Commission: An independent body set up by the Indian Parliament for the purpose of organizing and monitoring elections.
3. Voter: An Indian citizen above the age of eighteen, who has registered himself/herself with the Electoral Commission for the purpose of voting.
4. Candidate: An Indian citizen above the age of thirty, who has voted before, and wishes to represent his constituency in an election.

**1.4 Overview:**

The rest of this SRS is organized as follows: Section 2 gives an overalldescription of the software. It gives what level of proficiency is expectedof the user, some general constraints while making the software and someassumptions and dependencies that are assumed. Section 3 gives specificrequirements which the software is expected to deliver. Functional requirements are given by various use cases. Some performance requirements anddesign constraints are also given

**2. Overall Description:**

**2.1 Product Perspective:**

OVS is aimed towards providing an online platform for conducting elections in an efficient and cost-effective way. OVS should be user-friendly,easy to use, and reliable for the mentioned purpose.

OVS is intended to be a stand-alone web-based application and shouldnot depend on the availability of other software other than a modern webbrowser. It should run on UNIX, Windows and IOS based platforms.

**2.2 Product Functions:**

|  |  |  |
| --- | --- | --- |
| **Class of use cases** | **Use cases** | **Description of use cases** |
| Use cases related to system authorization | 1.User Login  2.Change Password | 1. Log into OVT.  2. Changes password of account In OVT. |
| Use cases related to registration | 1. Candidate Document Verification 2. Candidate Registration 3. Voter Registration | 1. Admin verifies documents uploaded by candidates. 2. Registers a candidate. 3. Registers a voter. |
| Use cases related to candidate information | 1. Voters view Candidate’s data 2. Upload Candidate Information | 1. System allows voters to view candidate’s data. 2. Provision for logged in candidates to upload details and milestones. |
| Use cases related to election | 1. Create Election 2. Vote for Candidate 3. Result Calculation 4. Election Cancellation 5. Pause Election 6. Resume Election | 1. Create a new election 2. Provision for voters to vote for candidates 3. Calculation of results. 4. Cancels ongoing election 5. Pauses an ongoing election 6. Resumes a paused election. |

**2.3 User Characteristics:**

a) User should have sufficient expertise to use a web-based application.

b) All voters and candidates must possess a valid Voter ID card.

**2.4 Principal Actors:**

The principal actors in OVS are “admin”, “voter”, “candidate”, and the“system”

**2.5 General Constraints:**

a) For working, OVS requires an internet connection.

b) OVS is a web-based software.

**2.6 Assumptions and Dependencies:**

a) Full working of OVS is dependent on the availability of an internetconnection.

b) OVS can only be used to vote in selected areas.

**3.Specific Requirements:**

**3.1 Functional Requirements:**

We describe the functional requirements by giving various use cases.

***Use cases related to system authorization***

**Use Case 1**: **User Login**

*Primary Actor*: Candidate, Admin, Voter

*Pre Condition*: Good Internet connection

*Main Scenario*:

1. System prompts the user for login and password.

2. User gives the login and password.

3. System does authentication.

4. The user dashboard is displayed according to the category of user(admin/voter/candidate).

*Alternate Scenario* :

4(a). Authorization fails

4(a)1. Prompt the user that he typed the wrong password

4(a)2. Allow him to re-enter the password. Give him 3 chances.

**Use Case 2: Change Password**

*Primary Actor*: User

*Pre Condition*: User logged in

*Main Scenario*:

1. User initiates the password change command.

2. User is prompted for old password, new password and confirms new password.

3. User gives the old password, new password and confirms new password.

4. System does authentication.

5. New password is registered with the system.

*Alternate Scenario*:

5(a). Authorization fails

5(a)1. Prompt the user that he typed the wrong password

5(a)2. Allow him to re-enter the password. Give him 3 chances.

5(b). New password and confirm new password do not match.

5(b)1. Allow him to re-enter the attributes. Give 3 chances.

***Use cases related to registration***

**Use Case 3: Candidate Document Verification**

*Primary Actor*: Admin

*Pre Condition*: Admin logged in.

*Main Scenario*:

1. Admin clicks a candidate name marked with the status “Pending Approval”.
2. Admin checks the documents of the candidate.
3. If the document is correct, he clicks Approve button. If it is faulty and admin wants to remove it, admin clicks on Reject button.
4. Admin clicks on “register Candidate”. This generates user id and password for candidate.

*Alternate Scenario*:

4(a). All documents present do not have the status “Approved”

4(a)1. System asks the admin to delete the faulty document or wait for the candidate to upload the correct one.

4(b) A document has not been marked as Approve/Reject.

4(b)1. System prompts the admin to mark it.

**Use Case 4: Candidate Registration**

*Primary Actor*: Candidate

*Pre-Condition*: Good Internet connection

*Main Scenario*:

1. System asks candidate to enter basic details like Name, Age, Party, Constitution etc.

2. Candidate enters the details.

3. System asks candidate to upload the requisite documents.

4. Candidates browses to the directory containing the documents and uploads them.

5. Candidate clicks on Register button.

6. System notifies that the user id and password will be given after verification of the documents.

*Alternate Scenario*:

3(a) Candidate’s age < 30 years

3(a)1. System shows an apology message that the user can’t be a candidate.

3(b) Candidate enter invalid constitution

3(b)1. System displays error message

3(c) Candidate left a field blank

3(b)1. System displays error message and allows candidate to type the information

5(a) File limit exceeded

5(a)1. System displays an apology message and allows user to delete uploaded documents.

6(a) Candidate hasn’t uploaded any documents

6(a)1. System displays an error message.

**Use Case 5: Voter Registration**

*Primary Actor*:Voter

*Pre-Condition*: Good Internet connection.

*Main Scenario*:

1. System asks candidate to enter basic details like Name, Age, Voter Card ID, Email ID etc.

2. Voter enters the details.

3. Voter clicks on Register button.

4. System registers the voter and displays the auto generated user id and password.

*Alternate Scenario*:

3(a) Voter’s age < 18 years

3(a)1. System shows an apology message that the user can’t be a voter.

5(a) Voter left a field blank

3(b)1. System displays error message and allows voter to type the information

***Use cases related to candidate information***

**Use Case 6**: **Voters view Candidate’s data**

*Primary Actor*: Voter

*Pre-Condition*: Voter logged in.

*Main Scenario*:

1. Voter enters the area in which he wants to view candidates.

2. He clicks on the desired candidate name.

3. System displays the documents and detailed information about the background of candidate.

*Alternate Scenario*:

2(a). No candidates exist from that area

4(a)1. System displays apology message and allows user to enter another area.

**Use Case 7: Upload Candidate Information or Milestones**

*Primary Actor*: Candidate

*Pre-Condition*: Candidate logged in.

*Main Scenario*:

1. Candidate clicks on add document button.

2. System asks candidate to choose the directory containing the document.

3. Candidate adds the document that may include previous milestones or other details.

4. System displays a success message.

*Alternate Scenario*:

*4(a)* File format not supported

4(a)1. System displays an apology message and allows candidate to choose an alternative document.

4(b) File size exceeded

4(b)1. System displays an apology message and allows user to delete uploaded documents.

***Use cases related to election***

**Use Case 8: Create Election**

*Primary Actor*: Admin.

*Pre-Condition*: Admin logged in.

*Main Scenario*:

1. Admin clicks on “Create Election”.
2. System displays form for election creation.
3. Admin fills up the required details including start time and end time of election.
4. System displays the list of registered candidates.
5. Admin chooses/approves the candidates participating in the election.
6. Admin clicks on “Create”
7. System displays a success message.

*Alternate Scenario:*

4(a) There are no registered candidates.

4(a)1. System displays an apology message and doesn’t create the election.

7(a). Admin hasn’t approved any candidate

7(a)1. System displays an error message

**Use Case 9: Vote for Candidate**

*Primary Actor*: Voter

*Pre-Condition*: Voter logged in.

*Main Scenario*:

1. User selects Voting option.
2. System displays the ongoing elections.
3. User selects the desired election.
4. System displays the different candidates where voter can view their details.
5. Voter clicks on the vote button beside the desired candidate.
6. System displays a success message and disables the voter from voting further in that election.

*Alternate Scenario:*

2(a) There is no ongoing election

2(a) 1. System displays an apology message.

**Use Case 10: Result Calculation**

*Primary Actor*: Candidate, Admin, Voter

*Pre-Condition*: User(Candidate/ Admin/Voter) logged in.

*Main Scenario*:

1. User clicks on Elections
2. User clicks on “Results” beside the election.
3. System calculates the result and election statistics.
4. System displays the candidates vs their votes and the winner.

*Alternate Scenario:*

3(a). Election is ongoing.

3(a)1. Systems displays message that result can’t be generated while the election is ongoing.

**Use Case 11: Election Cancellation**

*Primary Actor*: Admin.

*Pre-Condition*: Admin logged in.

*Main Scenario*:

1. Admin clicks on Elections.
2. System displays the elections with their status “ongoing” or “paused” or “finished”.
3. Admin clicks on “Stop Election” beside the appropriate election.
4. System asks a confirmation message.
5. Admin confirms and cancels election.

*Alternate Scenario:*

3(a) Stop button is disabled as election is not ongoing.

3(a) 1. System allows user to create new election or resume election if paused.

**Use Case 11: Pause Election**

*Primary Actor*: Admin.

*Pre-Condition*: Admin logged in.

*Main Scenario*:

1. Admin clicks on Elections.
2. System displays the elections with their status “ongoing” or “paused” or “finished”.
3. Admin clicks on “Pause Election” beside the appropriate election.
4. System asks a confirmation message.
5. Admin confirms and pauses election.
6. System displays success message

*Alternate Scenario:*

3(a) Pause button is disabled as election is not ongoing.

3(a) 1. System allows user to create new election or resume election if paused.

**Use Case 12: Resume Election**

*Primary Actor*: Admin.

*Pre-Condition*: Admin logged in.

*Main Scenario*:

1. Admin clicks on Elections.
2. System displays the ongoing elections.
3. Admin clicks on “Resume Election” beside the appropriate election.
4. System asks a confirmation message.
5. Admin confirms and pauses election.
6. System displays success message

*Alternate Scenario:*

2(a) Resume button is disabled as election is ongoing or finished.

2(a) 1. System allows user to create new election and to pause or stop the ongoing election.

**3.2 Performance Requirements:**

(a) The software should run on at least 500 MHz, 64 MB machine.

(b) The software is expected to serve a maximum of up to 500 voters at any point of time.

(c) OVT should be able to log in and feed the voter with new pages on request with a response time of the order of a few seconds.

**3.3 Design Constraints:**

1. *Security against power failure:*In order to prevent data loss in case of power failure, the result of votes that were polled till then have to be saved in the database, for the system to resume the counting process on reboot.

2.*Handling security breaches:*In case the EC detects any security breaches in the system, they should able to pause or cancel the election immediately while preserving the already polled votes.

3.*Security against crash:*The software should be capable of recovering from crashes and continuing the voting process.

4. *Authentication:*The system should provide basic security features like password authentication and encrypted transactions.

5. *Security:* Protection from malicious users should be maintained by limitingthe number of invalid log-in attempts.

**3.4Future Extensions:**

The functionality can be extended so as to accommodate all the functionalities of the elections online rather than just voting. All the processes conducted by the Election Commission, prior to the voting process, including registration of candidates in a particular election can be incorporated in the software.